

Ecosystem Restoration

Increasing Levels of Success

AKA

Reducing Risk of Failure

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New Orleans District



Identify issues for success

Blackwater Conservation Area



Issues for Success

1. Set realistic goals
2. Define success criteria
3. Identify vulnerable issues
4. Interdisciplinary expertise



Set Realistic Goals

The greater the change, the greater the risk

High energy systems, such as streams, will be more difficult to restore than low energy systems

Removal of the stressor may not restore ecosystem

Different goals than for flood damage reduction



Define Success Criteria

Criteria for success - different than for flood damage reduction

Tree survival of 70% is success

Levee failure of 1% not a success

Define success criteria

**% tree survival, acres of wetlands,
acres of forested system of native species
acres of permanent water features, etc.**

Identify Vulnerable Issues

**Increase effort to address critical points
(different than for flood damage
reduction)**

Get the hydrology correct

Daily, weekly, seasonal water regime

Water retention in soils

Correct vegetative types for habitat

Soil remediation (pH, organics, fertility)

Interdisciplinary Expertise

Environmental more involved in the design than for conventional COE projects.

Tap expertise of other agencies and elements, such as USFWS, NRCS, ERDC, etc.

Designers, constructors, and operators in early planning and design.



Blackwater Conservation Area

Section 206 of WRDA 1996

Initiation to Dedication 2 years 11 months

mvn.usace.army.mil/prj/cap/blackwater



1974



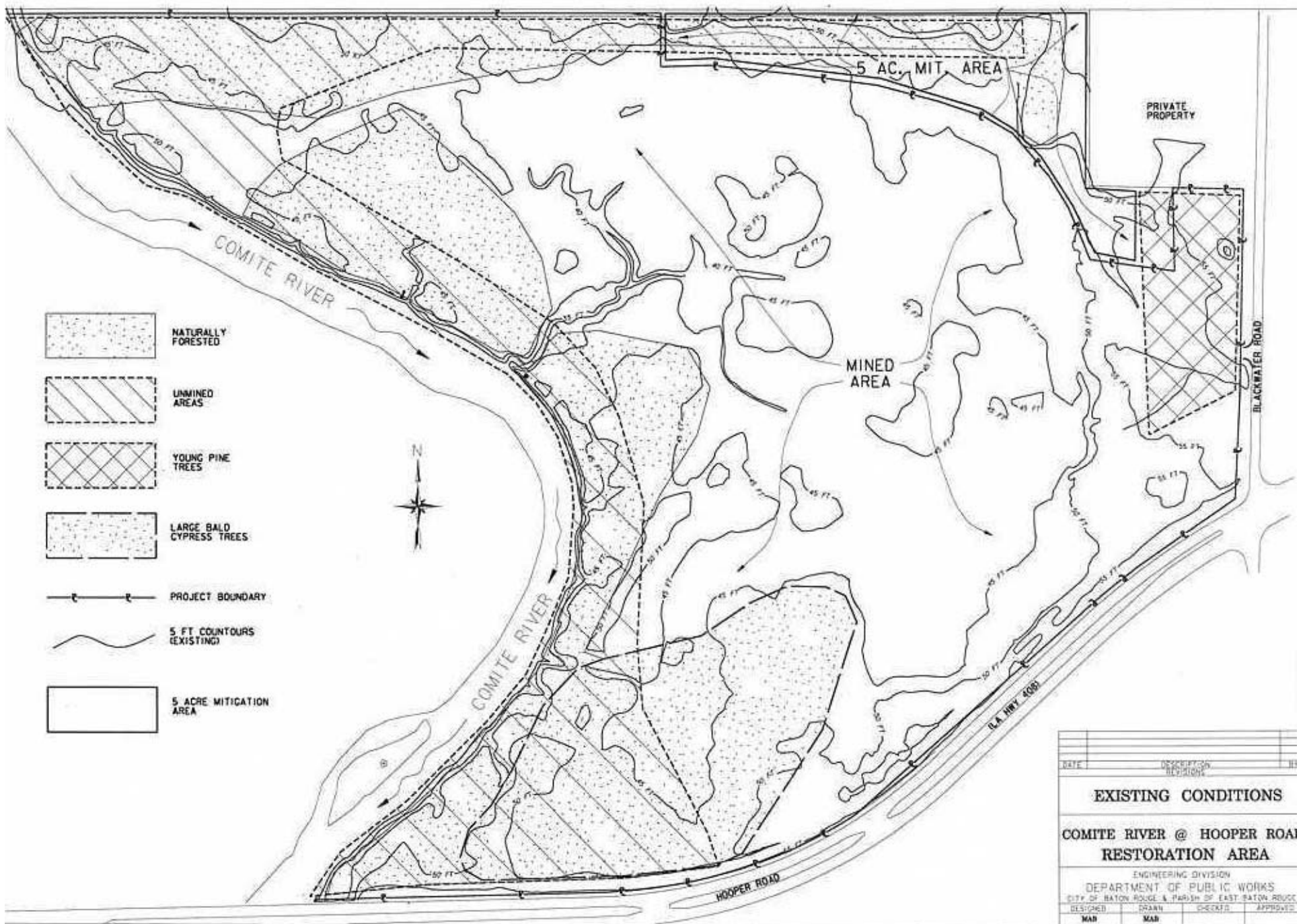
1978



1985



1995



Floods from Tropical Storm Allison























Site Conditions

Slow forest regeneration

Low fertility

Acidic soils pH - 5.4

Exotic Chinese tallow trees

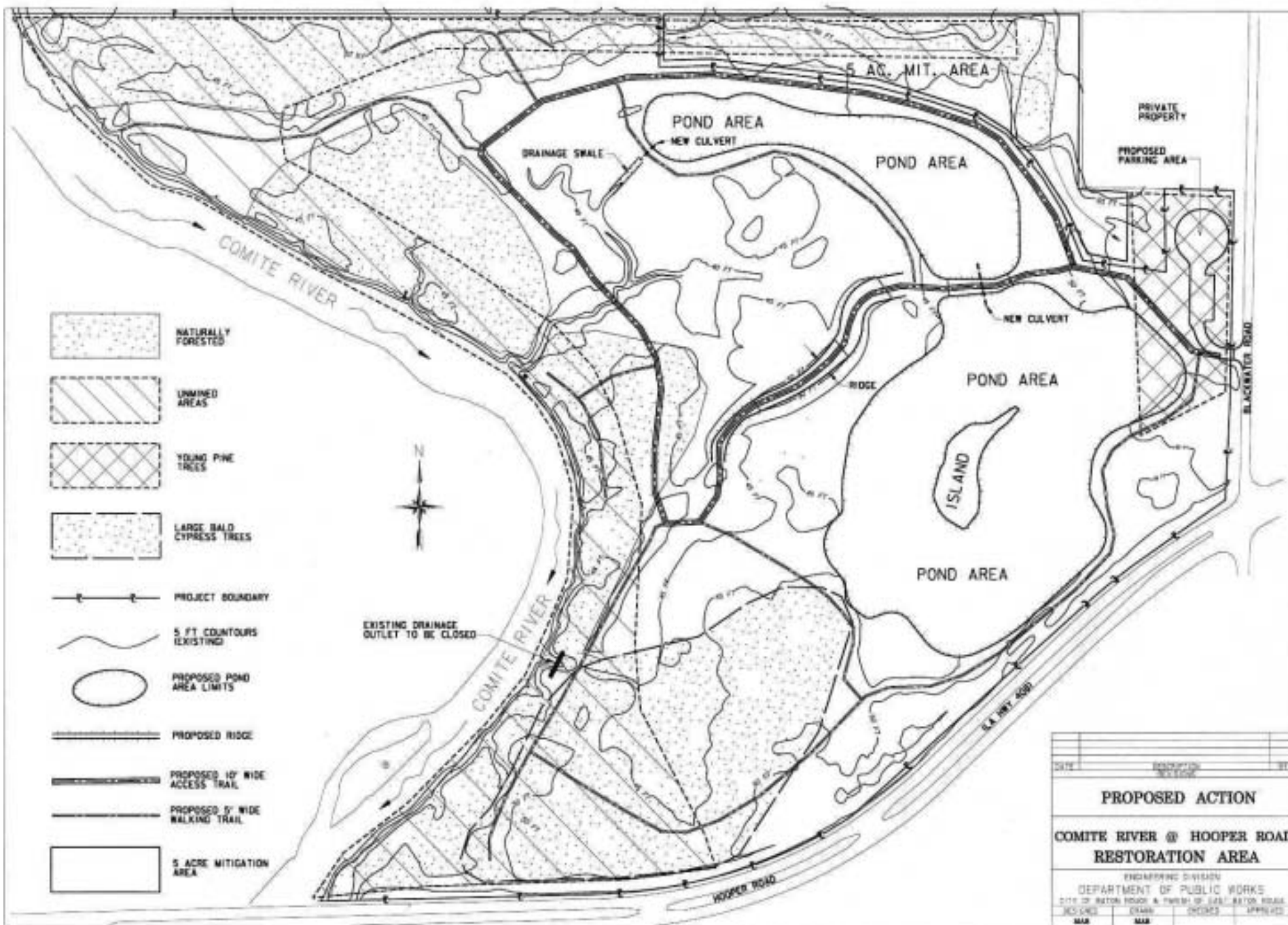
<0.1 of an acre of permanent water

General Objectives

- to restore to a naturally productive aquatic, bottomland hardwood, freshwater swamp, and riparian ecosystem.

Success Criteria

- to create 9-10 acres of permanent water features and establish natural forest assemblage in the remaining degraded areas.
- Create 10.4 AAHUs of forested wetlands of native species



Design Specifics

Creation of Lakes - 60,000 cu yds

Slopes vary from 3:1 to 20:1

Safety shelf and fish spawning habitat

Soil Remediation (NRCS)

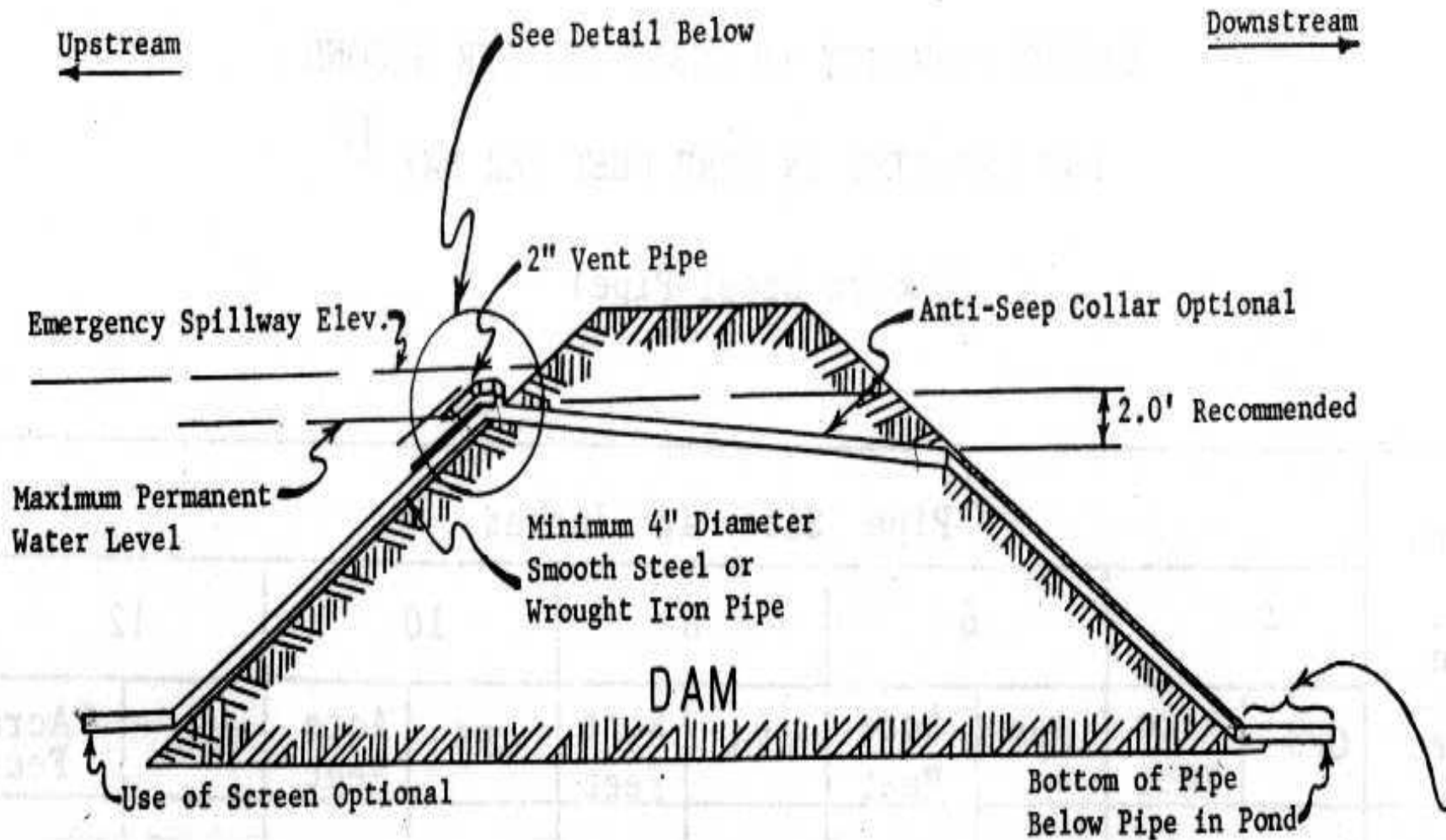
2 tons of dolomitic lime/acre

Incl. lake bottoms

10 tons of mulch/acre

1,000 lbs of 13-13-13 fertilizer

DRAIN PIPE-TRICKLE TUBE FOR FARM PONDS



Ground cover would be planted immediately after construction

Depending on time of year, would consist of a combination of bermuda grass, brown top millet, cereal rye, or ryegrass (NRCS)

Tree Planting Scheme (LDWF)

1. Pine (loblolly, spruce) waxmyrtle
2. Baldcypress, tupelogum
3. Cherrybark oak, native sweet pecan
4. Blackgum, willow
5. Riverbirch, cottonwood
6. Red mulberry, common persimmon
7. Water oak, cow oak
8. Live oak

Environmental Benefits

9-10 acres of aquatic habitat

10.4 AAHUs of forested wetlands

1 mile of riparian habitat

35 acres of restored bottomland hardwood

Wildlife corridor link

Improved habitat for many F&W species

Reduce non-point pollution

Recreational Features

62.5 acre nature-based area

Over 1.8 miles of improved walkways

Two fishing lakes with 2-acre island

Public access to Comite River

Parking (cars and buses)

Restrooms



US Army Corps
of Engineers

Maintenance Unit D

Operations and Readiness
Division

NOTICE
AUTHORIZED
PERSONNEL
ONLY

DANGER
HARD HAT
AREA

DANGER
EAR PROTECTION
REQUIRED IN
THIS AREA





BLACKWATER CONSERVATION AREA



**U.S. ARMY CORPS OF ENGINEERS
NEW ORLEANS DISTRICT**



**CITY OF BATON ROUGE,
PARISH OF EAST BATON ROUGE**



**RECREATION AND PARK COMMISSION
FOR THE PARISH OF EAST BATON ROUGE**





Dedication March 26, 2002

















Issues for Success

1. Set realistic goals

Creation of lakes with reservoir of clay

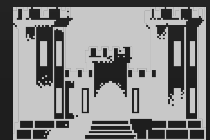
Bottomland hardwood/Freshwater Swamp

Normally have 60 inches of rain

Riverine, but low energy

Soil types

Tree assemblages with soil types



Issues for Success

2. Define criteria by which success is measured

10.4 AAHUs of forested wetlands

native BLH and freshwater swamp species

9-10 acres of permanent water features

Recreation opportunities



Issues for Success

3. Identify vulnerable issues

Sand/Silt areas –

boring plans, NRCS, ASCS

Capped areas with 2 + feet of clay

Unit D - Construction Crew - Lake Bottom

Planting scheme –

native plants from local stock

contractor with planting specifications



Issues for Success

4. Interdisciplinary Expertise

CORPS – PM, ENG, GEO, ENV, UNIT D in design

NRCS – Soils, lake bottom, borings

LDWF – Planting, Fish stocking

**BREC – Recreation feature design and construction,
plantings, restoration design**

DPW - Surveys, Design, and Construction











Success, so far?

? **10.4 AAHUs of forested wetlands**

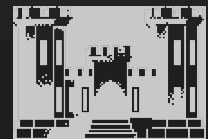
Not at end of growing season

✓ **Permanent water features**

**Lakes (12 acres) held water
during 35 days of drought with
only 2 inches of water level loss,
mostly due to evaporation**

✓ **Recreation opportunities**

High use by public



Issues for Success

Team effort, Corps, Sponsors, and Partners

Cost-effective geologic boring strategy

Developed earthwork with borings data

Soil remediation and lake plan with NRCS

Existing NRCS designs for lake drains

In-house construction crew involved in design

In-house construction crew attention to detail
on lake bottom construction, etc

LDWF bream, bass, and catfish stocking

Larger project in high-energy systems?

Different Story...



1940

1994

